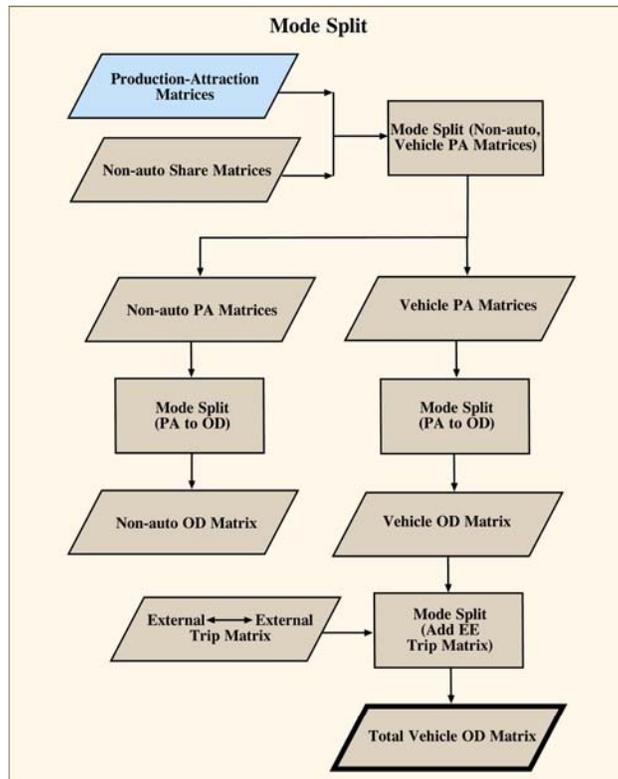




MODE SPLIT

In the mode split step, the input Production/Attraction (PA) matrices are split into auto PA and non-auto PA matrices. The step after mode split transforms the auto PA matrix into auto origin-destination (OD) matrix. Figure 14 shows the process for mode split used in the Lincoln MPO model.

FIGURE 14. MODE SPLIT



External – External Trip Matrix

As mentioned in the trip generation process, some trips originating at an external zone may not stop in the Lincoln MPO model area and exit the model area through another external zone. These trips, however, use the model network to move between one external zone to another. These trips should also be part of the trip assignment procedure. It is for this reason that the trip exchange between external zones is summarized in the external – external trip matrix.

For the Lincoln MPO model, trip exchange information between external zones was provided by the City of Lincoln staff and is shown in Appendix A.



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Non-Auto Share Matrix

The non-auto share matrix contains the percentage of trips made using non-auto modes from one TAZ to another TAZ for each trip purpose. Table 18 shows the percentages of total person trips that use non-auto modes for each trip purpose. This data was estimated based on the 2001 National Household Travel Survey (NHTS).

TABLE 18. PERCENTAGE OF NON-AUTO MODE TRIPS

Trip Purpose	Percentage of Non-Auto Mode Trips
Home Based Work	6.0%
Home Based Shop	0.7%
Home Based Recreational	3.4%
Home Based Other	0.9%
Non Home Based	0.5%

Non-Auto OD Matrix

The input PA matrices are multiplied by the non-auto shares matrices to obtain a non-auto PA trip matrices. An all-day PA to OD procedure is performed on the non-auto PA trip matrices to obtain the total non-auto OD matrix. Table 19 shows the number of non-auto trips by purpose.

TABLE 19. NON-AUTO TRIPS BY PURPOSE

Trip Purpose	Daily Non-Auto Trips	Percentage of Total Non-Auto Trips
Home-based Work	12,242	48.0%
Home-based Shopping	2,118	8.3%
Home-based Social/Recreational	5,742	22.5%
Other Home-based	3,087	12.2%
Non Home-based	2,299	9.0%
TOTAL	25,488	100.0%

Total Vehicle OD Matrix

The non-auto PA matrices are subtracted from the input PA matrices to obtain the auto PA trip matrices. An all-day PA to OD procedure is performed on the auto PA matrices to obtain the auto OD matrix.

It is in this step that the person trips are converted to vehicle trips using auto occupancy rates for each trip purpose. Auto occupancy rates used in the Lincoln MPO model are presented in Table 20. Table also shows a comparison of the Lincoln MPO occupancy rates with that of 2001 NHTS rates. The NHTS rates for the West-North Central region were used as guidelines and the home-



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based work was adjusted during the validation process to account for Lincoln auto occupancy data.

TABLE 20. VEHICLE OCCUPANCY RATES

Trip Purpose	Lincoln MPO Average Vehicle Occupancy (Persons)	West North Central*
Home-based Work	1.18	1.11
Home-based Shopping	1.84	1.84
Home-based Social/Recreational	1.81	1.81
Other Home-based	1.75	1.75
Non Home-based	1.70	1.70
All	1.65	1.65

*Source: National Household Travel Survey(2001), U.S. Department of Transportation, Bureau of Transportation Statistics

Table 21 presents the vehicular trips for each trip purpose. The NHTS data was used as a base and modified during calibration to reflect the unique travel characteristics in the Lincoln metropolitan area displayed by the traffic counts. The “Modal Split” button in the model interface will perform all the process detailed under this step.

TABLE 21. VEHICLE TRIPS BY PURPOSE

Trip Purpose	Daily Vehicle Trips - Lincoln MPO	Percentage of Trips - Lincoln MPO	Percentage of Trips -West North Central*
Home-based Work	179,026	19.7%	16.1%
Home-based Shopping	164,946	18.1%	22.7%
Home-based Social/Recreational	91,684	10.1%	9.8%
Other Home-based	206,283	22.7%	17.5%
Non Home-based	268,652	29.5%	33.9%
TOTAL	910,591	100.0%	100.0%

*Source: National Household Travel Survey(2001), U.S. Department of Transportation, Bureau of Transportation Statistics

External-External trip matrix is added to the vehicle OD matrix to create the Total Vehicle OD Matrix. The total number of vehicular trips for the 2004 model is 906,526 of which 27,177 are through trips.